WHAT IS CLAIME IS:

1. An infrared ray cut filter comprising:

a transparent substrate; and

a multilayer membrane including multiple high-refractive index thin membranes of a high-refractive index material and multiple low-refractive index thin membranes of a low-refractive index material, which are laid on said transparent substrate in an alternating fashion, said multilayer membrane having thin membrane layers of no less than 16 but no more than 32,.

wherein:

the first layer of said multilayer membrane from a side of said transparent substrate is one of said high-refractive index thin membranes and is formed to have an optical thickness of no less than $\lambda/4$;

the second layer of said multilayer membrane is formed to have an optical thickness of no less than $\lambda/4$;

each layer from the third layer through a prescribed layer of said multilayer membrane is formed to have an optical thickness of no more than $\lambda/4$;

each layer between said prescribed layer and the last layer of said multilayer membrane is formed to have an optical thickness of no less than $\lambda/4$;and

said last layer is one of said low-refractive index thin membranes and is formed to have an optical thickness of no more than $\lambda/4$,

where λ represents design wavelength.

2. The infrared ray cut filter according to claim 1, wherein said prescribed layer is the sixth or seventh layer of said multilayer membrane from the side of said transparent substrate.

3. The infrared ray cut filter according to claim 1, wherein said low-refractive index thin membranes are made of TiO_2, and said high-refractive index thin membranes are made of SiO_2 or MgF_2.

4. The infrared ray cut filter according to claim 1, wherein a medium-refractive index thin membrane composed of a medium-refractive index material is disposed between said transparent substrate and said multilayer thin membrane.

5. The infrared ray cut filter according to claim 1, wherein a medium-refractive index thin membrane composed of Al_2O_3 is disposed between said transparent substrate and said multilayer membrane.

6. The infrared ray cut filter according to claim 1, wherein said filter has a light permeability characteristic wherein light permeability decreases gradually as the light wavelength increases from 550 nm to 750 nm.

7. A manufacturing method for an infrared ray cut filter comprising a transparent substrate and a multilayer membrane including multiple high-refractive index thin membranes of a high-refractive index material and multiple low-refractive index thin membranes of a low-refractive index material, said multilayer membrane having thin membrane layers of no less than 16 but no more than 32, the method comprising the steps of:

forming a first layer in the first position on said transparent substrate with said high-refractive index material and to have an optical thickness of no less than $\lambda/4$;

forming a second layer in the second position on said transparent substrate with said low-refractive index material and to have an optical thickness of no less than $\lambda/4$;

forming plural layers from a third layer through a prescribed layer with said high-refractive index material and said low-refractive index

material which are laid in an alternating fashion and each layer to have an optical thickness of no more than λ/4;

forming plural layers between said prescribed layer and a last layer in the last position on said transparent substrate with said high-refractive index material and said low-refractive index material which are laid in an alternating fashion and each layer to have an optical thickness of no less than λ/4; and

forming said last layer with said low-refractive index material and to have an optical thickness of no more than λ/4,

where λ represents design wavelength.

8. The manufacturing method for infrared ray cut filter according to claim 7, wherein said prescribed layer is the sixth or seventh layer of said multilayer membrane said transparent substrate side.

9. The manufacturing method for infrared ray cut filter according to claim 7, wherein said low-refractive index thin membranes made of TiO_2 are formed, and said high-refractive index thin membrane made of SiO_2 or MgF_2 are formed.

10. The manufacturing method for infrared ray cut filter according to claim 7, wherein a medium-refractive index thin membrane composed of a medium-refractive index material is disposed between said transparent substrate and said multilayer membrane.

11. The manufacturing method for infrared ray cut filter according to claim 7, wherein a medium-refractive index thin membrane composed of Al_2O_3 is disposed between said transparent substrate and said multilayer membrane.

12. The manufacturing method for infrared ray cut filter according to claim 7, wherein said filter has a light permeability characteristic wherein

light permeability decreases gradually as the light wavelength increases from 550 nm to 750 nm.